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ABSTRACT

The system, designed as a result of this study provides for a separate collection of government publications, with a single country-based notation scheme which makes it possible to display the publications on the shelves in a manner conducive to browsing. The document code number not only establishes the shelf position of each publication but links the actual publication to a unified index scheme which provides access through a variety of data elements--perscnal and corporate author, title, serial and series title, etc. In addition, this study shows that mechanization or automation is an important environmental factor which should be considered when studying any university library system or subsystem. (Author/NH)

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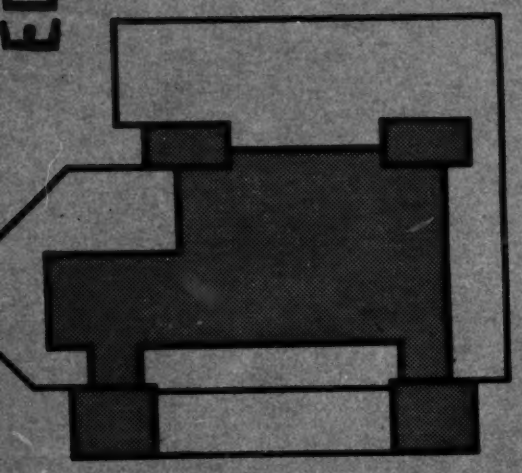

# THE LIBRARY
# UNIVERSITY OF GUELPH

Documentation system for the organization of government publications within a university library

by

Margaret Beckman

Research Report No. 2 U-LIB-GLPH-RR-69-2

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# RESEARCH REPORT

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# Preface

This report is a revision of a paper written under the guidance of Professor William J. Kurmey, Professor John P. Wilkinson and Professor Olga Bishop, School of Library Science, University of Toronto, as partial fulfillment for the degree of Master of Library Science.

The author is grateful to Mr. L. F. MacRae, Chief Librarian, University of Guelph, who provided both the environment and encouragement which made the study possible.

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# Chapter 1. The Problem

## I Introduction

In the past it was considered that university libraries which were not depositories for government publications could easily incorporate government titles into their own catalogued collections.(1) However, increasing emphasis on research in universities, even at the undergraduate level, has brought greater dependence on the source material which government publications contain. In addition, the technical or research report, whether issued by a government agency or issued independently but sponsored by a government agency, has become a major source of research material and should be included in a consideration of the organization of government publications. Thus, all but the smallest university libraries are facing the same basic problem: the difficulty of assimilating into the library system extensive collections of government material, much of which is of a complicated serial nature, requiring detailed analysis in order to provide other than superficial access.(2)

How should a university library treat its government publications? Should they be segregated on the basis of "origin, format, method of publication and method of indexing" as suggested by Jackson,(3) or should they be placed in the library's general collection, fully catalogued like other publications, as Osborn insists?(4) This paper investigates traditional methods for the organization of government publications in a university library, and considers a new method made possible by new technology.

Before discussing traditional or new concepts of government publication organization within a university library, definitions of terms used within the context of this paper may be useful since some of the terminology is primarily for this particular report and may differ from other use.

## II Definitions

### 1. Government publication

The term government publication as used in this paper is a very broad one, and is taken to mean any publication emanating from any level of government, or from its agencies, bureaux and branches, or from any source which produced a publication using government support. This includes research and technical reports, either issued by government agencies or sponsored by government grants.

### 2. Separate collection

A separate collection for the arrangement of government publications is used to indicate that government publications are physically separate from the main library collection, and that access to the collection is not obtained either through the general library classification scheme or the main public card catalogue.(5)

### 3. Integrated collection

An integrated collection describes government publications which are catalogued and classified with all other publications; i.e., they are shelved by classification throughout the library, and access to them is through the main public card catalogue.(6)

4. Arrangement of publications

Arrangement is defined as a physical organization of publications on library shelves. In most libraries the arrangement is in classified order dependent on the system of classification used by the library. However, arrangement can be without an actual notation scheme and could be alphabetic by author or by country of origin, by size, date of publication, etc.

5. Organization of publications

Organization of publications is used in this paper to signify that the content and other data elements of a publication are considered in addition to and in relation to their physical location, and that some method of providing access, other than through physical arrangement, is involved.

6. Bibliographic access

The term bibliographic access is used to describe the action of providing for retrieval through identifying data elements - author, title, date, publisher, subject, etc. - of a publication, usually through an index or catalogue, as opposed to physical access, which is direct retrieval of the publication itself.

7. Display

Display is the visual manifestation of bibliographic access - for instance, the listing of the data elements relating to a publication in the main public catalogue or index.

8. System

A system is a set of objects with relationships between the objects and their attributes.

## III Traditional Organization of Government Publications

As a result of a survey conducted in 1960 at the University of Kansas, Caldwell stated that "in spite of the oft-expressed desire to treat government publications like any other publications and the desire for single catalogs and unified collections, there are likely strong practical reasons which cause so many of these research libraries to give their documents special treatment".(7) This survey is useful to indicate the traditional patterns of organization of government publications in university libraries. The sample used was the membership of the Association of Research Libraries, and the results were as follows:

| | |
|---|---|
| Completely separate collections: | 8 |
| Predominantly separate collections: | 4 |
| Integrated collections: | 6 |
| Mixed systems (partially separate): | 5 |

Thus, of the responding libraries "three-fourths give some sort of separate treatment to documents, and only about one-fourth treat documents completely like other publications".(8)

A survey at the University of Michigan in 1964,(9) and another at Massachusetts in 1965 had similar results. The Massachusetts survey,(10) for example, showed the following:

| | |
|---|---|
| Separate collection: | 9 |
| Integrated collection: | 7 |
| Combination: | 10 |

Early surveys by Campbell,[11] Eastin,[12] and Jackson[13] had results little different from these recent surveys. University libraries have traditionally used one of two different methods or a combination of the two for the organization of government publications, and the library literature attests to the continued concern about the merits or disadvantages of the two systems. As Downs states in his recent survey of Canadian academic libraries: "There is some difference of opinion on one matter relating to government documents: how they should be organized for effective use. Perhaps the most common plan is to maintain them as a separate collection, with a specialist in charge. An alternative is to treat them exactly like any other books, journals, pamphlets, maps, etc., coming into the library - classify and catalogue them fully, record them in the general library catalogue and intershelve them with non-documentary publications".[14]

## A The Integrated Collection

In 1939, Erlandson pointed out that "if government publications are to be part of the general collection of the library, they are of course treated as other books. They are classified by the same system, catalogued by the same policies and processes, and shelved in the same location as other books".[15] She went on to describe what she considered the advantages of the integrated collection.

> "1. All material on a certain subject is classed together, whatever its source.

2. There is only one classification system for staff and patrons to learn and use.

3. Government publications are probably used more by the general public under this system."[16]

Disadvantages were also discussed.

"1. The collection must be catalogued in order that there may be a key to its use. This means added expense for the library, and delay in getting the publications onto the shelves for use.

2. Methods of shelving of unbound documents and of the serial set may become a problem.

3. Space in the general stacks must be adequate to receive many volumes per year."[17]

Since 1939 however, the increase in government publications and the diversity of subjects covered in these publications has cast doubt in university libraries on the value of incorporating documents into the general collection. If scientific research reports sponsored by the government are included in the government publications collection, traditional methods of cataloguing might well be impossible. "One estimate puts the number of technical documents published in 1961 at 658,000, and the number to be published in 1970 at 1,143,000."[18] Norman Clarke summed up the problem as follows: "The factors of increasing volume and diversity, combined with variables such as the expanded employment of deposit as a system for the distribution and acquisition of government publications, the almost continuous rise of cataloging costs at a time when the effectiveness of traditional library concepts of the catalog is being seriously challenged, and the growth, increasing sophistication and

availability of centrally published indexes to government publications have led many librarians to question, at least partially, the applicability of traditional library cataloging, classification and storage methodology as the organizational solution to the body of government documentation".(19)

An additional argument against the integrated collection stems from what may be a difference between the type of use of a government publication collection in a public reference library and the type of use in a university library. Low points out that one of the compelling reasons for a separate documents collection as opposed to an integrated collection is the desire, on the part of the faculty, for arrangement by issuing body.(20) Caldwell, in his survey at Kansas, discovered that faculty members in the departments which use documents most heavily and regularly - Political Science, History and Economics - favoured a separate collection.(21) This finding is supported by the Association of Political Science teachers in Ontario universities.(22)

With this stated preference for the separate collection by many university faculty members in addition to the reasons presented by Clarke, it is not surprising that the statistics shown in the previously discussed surveys indicate that the majority of university libraries have chosen what is called the separate collection for government publications.

B The Separate Collection

The advantages and disadvantages of the separate collection were seen by Erlandson in 1939 to be as follows:

Advantages:

"1. The separate collection in charge of a librarian who has specialized in the subject can give better reference service. Because the one in charge not only services the publications, but checks them in and enters them in whatever shelf list or index is provided, he is more familiar with the arrangement and content than a librarian who works with government publications in a more casual way.

2. The time element is an important one. The separate collection with its own classification makes possible the use of government publications almost immediately after their receipt. If the collection is classified by issuing bureau, the publication need not be sent to any other department in the library, but can be put directly on the shelves.

3. The separate collection may be less expensive because it does not require regular cataloging.

Disadvantages:

1. It separates government material from other material on a subject.

2. The collection is seldom a complete collection, because many publications must be available in other departments.

3. In order to be of greatest service, the separate collection depends on the cooperation and training of people in charge of other departments in the library. Assistants in the reference department, for example, must recognize a document question and refer it to the documents room, and they must know in what field government publications can supplement periodicals and reference books.

4. There is need for much duplication. The separate collection tends to be merely a reference collection, and if publications are to circulate, as many of them should, they must be duplicated."(23)

In arranging a separate collection the most common practice is to use the Superintendent of Documents classification plus similar supplementary schemes, or to arrange the documents alphabetically by issuing body.(24) Bibliographic access to the collection is provided by dependence, either largely or entirely, on printed catalogues and indexes.(25)

In addition, however, to the advantages and disadvantages to the separate collection outlined above, other considerations should be discussed. If a collection of documents in any given university library were to consist entirely of publications from the United States federal government, the Superintendent of Documents classification linked to the monthly Catalog would probably provide the best access possible to that collection. However, most Canadian university libraries will have at least the publications of the following major jurisdictions:

U.S. Federal government
U.S. State governments
Canada. Federal government
Canada. Provincial governments
United Kingdom
France, Germany, Russia
Commonwealth countries
Local government
United Nations and its agencies.

The majority of the above jurisdictions do not supply a classification or an index to their own publications.(26) If the approach to the publication is by author (personal), title, subject or report number, several different indexes will have to be searched; and unless the library is supplying its own index for unlisted material, much will be incapable of retrieval.

Nor do comprehensive subject indexes satisfy the access needs of many of the research documents under discussion. A recent study of the literature of agricultural economics[27] showed that while 80 per cent of the material was either published directly or indirectly by a government department such as the United States Department of Agriculture, only 33 per cent of the titles were indexed in the two major bibliographic indexes in this field: the Bibliography of Agriculture or the Agricultural and Biological Index.

The resulting situation in a university library with a separate collection is one of a multiplicity of separate arrangements (usually issuing body) on the shelves, some with their own notation schemes linked to their own indexes, many without. To find material either by subject, personal author or title, many different indexes must be used, or the user must go through the items in a likely jurisdiction title by title on the shelves. Of necessity, also, great dependence is placed on the memory of the Documents Division staff. With the present mobility of all library staff, this tends to be a precarious dependence, at best.

Many libraries have developed a compromise scheme which links both the cataloguing done for the integrated collection to the indexes available for the separate collection. Entries listed in printed catalogues are substituted for entries in the library's catalogue.[28] The simplest way of linking the card catalogue to the indexes is to provide "see also" cards in the catalogue.

Although this substitution as a bibliographic device is usually associated with a separate government publications collection, integrated collections are also making use of this practice.(29) This has led to what is really a combination of the two traditional systems for organization of government publications.

C The Combination System

In the integrated collection a combination system is provided by cataloguing the government serials and sets in the catalogue department without analytics, and making use of reference cards which refer to printed indexes. Markley suggests that "notes should be added to the main entries for serials and sets, informing the catalog user that more complete or analytical cataloging is available in the printed indexes".(30)

Unfortunately, a major disadvantage to this scheme is the lack of uniformity between either rules of entry or subject headings used by the Library of Congress and those used in the Documents Catalog.(31) Although the new Anglo-American Code for Cataloging would partially alleviate this problem since it calls for direct entry under the name of the body, the Library of Congress and its policy of superimposition will not make the effect of the new code applicable for quite some time and may well add further to the confusion.(32)

A distinct disservice to the user in this combination system is

that of complicating the location of the actual publication wanted. "In order to save their users the necessity of traversing the repetitious path from the initial catalog search to the index for the location, for the analytic and then back to the catalog"[33] some libraries write the classification number of the serial or set in the margin of the Document Catalog or other index, opposite the entry for the document. With the acquisition of technical and research reports in any great numbers in addition to a normal selection of official documents, or in a depository library, this practice might be almost as time consuming as normal cataloguing, albeit less demanding of the space in the card catalogue.

An additional disadvantage of the partially catalogued, partially indexed government collection is expressed by Campbell: "Librarians and others who are in favour of cataloguing documents may point out that the inclusion of government material in the card catalogue, though incomplete, may lead the reader to further researches in government catalogues; but it is also true that the inclusion of certain selected materials in the card catalogue may cause the reader to believe that all government documents are catalogued because some of them are".[34]

## IV New Schemes for Organizing Government Publications

Dissatisfaction with one or more aspects of either of the traditional or combination methods of organizing government publications has led several libraries to develop new schemes for organizing their government

publications. Two of these are discussed:

1. Oregon State Library

Although not designed for a university library, the scheme developed at the Oregon State Library could be applied in any large library. "Under the plan, instead of classifying fully each separate (publication) as an individual item, the agency issuing the document is classified" using classes for annual or biennial reports of the agency as a guide in assigning numbers. In the card catalog under the agency heading, the arbitrary heading "General publications" is assigned, and individual titles issued by the agency are listed as contents on the main card, chronologically by year of publication. The year is included in the call number and a separate set of catalog cards is made for each year's publications."(35)

Although this scheme gives prominence to the issuing agency which makes it more compatible with the indexes, access to the subject content and personal authors, title or report number of individual items within a series is neither provided in the catalogue nor linked to the indexes.

2. Oklahoma State College Library

The Oklahoma State College Library has also developed a method for handling government publications in a separate collection.(36)

Initially the documents were arranged in a separate collection by issuing body without the aid of any classification symbol. However, although Oklahoma was satisfied with the arrangement, increase in the number of documents and increasing complexity and changes of the government departments and bureaux made it a necessity to create a special notation scheme as an aid to arrangement. Low pointed out that "while we had certain reservations concerning the complexity of the Documents Office Classification, the use by it of unusual and possibly confusing symbols and the often chronological rather than alphabetical arrangement of bureaux within a department, the problem was basically one of finding a notation to include the entire collection of publications of federal, state, municipal and foreign governments, and of international agencies".(37)

The notation scheme developed at Oklahoma is displayed on the publications themselves and in the Document Division catalogue, where Library of Congress rules for entry are used.(38)

## V Summary

The problem of handling government publications in a university library is one, therefore, of choosing between the two traditional schemes of organization, of combining the two, or of developing a new scheme to meet the needs of the individual situation in a particular university. In favour of an integrated collection would seem to be the

desirability of displaying all parts of the library collection in one bibliographic tool -- the card catalogue. If quantity of publication makes consistent cataloguing of individual items impossible, links to existing indexes or catalogues for analytic cataloguing is considered by some to be an acceptable compromise. The majority of libraries, however, have elected to place government publications in separate collections using the notation schemes and indexes supplied by various jurisdictional agencies as the key to their collections, arranging the unindexed and unclassified material alphabetically by issuing body, and depending on trained staff to retrieve information - and documents - from the collection. In some separate collections links to the general collection are provided through see also references in the main catalogue.

In general terms the problem has been one of choosing between a scattered arrangement with a unified organizational system as exemplified in the integrated collection, and a unified arrangement (in terms of country if not notation) with a diversified organization, as exists in the separate collection.

However, "a library is only as good as its ability to provide those seeking information with access to the material they need...New systems and techniques for communicating this information are proliferating, and they must be evaluated".(39) It should be possible to develop a new system for the organization of government publications within a university library which would conform with the desire of the user for a separate collection, as pointed out by Caldwell and others,(40) but

which would, at the same time provide a single or unified arrangement and organization for the collection.

Chapter 1. Footnotes

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7. Ibid., p. 32.

8. Ibid.

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19. Norman F. Clarke, "Cataloging, classification and storage of government publications when incorporated into the general library collection," Library trends, v. 15 (July, 1966), p. 59.

20. Edmon Low, "Government publications at Oklahoma A. & M.," Serial slants, v. 7 (1956), p. 18.

21. Caldwell, "University libraries and government publications," p. 31.

22. John Black, private interview, January, 1967.

23. Erlandson, "The organization of federal government publications," p. 570.

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37. Ibid.

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# Chapter 2. The Study

## I Introduction

In order to develop a new system for the organization of government publications within a university library, a study was designed using the collection of government publications, including technical and research reports, at the University of Guelph Library. The objectives and scope of the study to be undertaken were defined, data was collected and a sample obtained.

## II Objectives of the Study

The express purpose of this study was to develop a system for the organization of government publications and government sponsored research and technical reports in a university library, which places these publications in a collection separate from the main collection. The basic hypothesis was that there is at least one system for the organization of government publications and research or technical reports within a university library which will provide access by physically bringing the collection together by country, and by displaying the bibliographic data elements of the collection in one organizational system through individual author, title, issuing body, serial title and series indexes.

## III Scope of the Study

### 1. The University of Guelph

The University of Guelph received its charter as recently as 1964. However, it was formed by the amalgamation of three existing provincial colleges: the Ontario Veterinary College (O.V.C.) founded in 1862; the Ontario Agricultural College (O.A.C.) founded in 1874; and the MacDonald Institute founded in 1902. Wellington College, a faculty for Arts and Science, was founded in 1964 at the time that the charter was issued to the University of Guelph.(1)

### 2. The Library. University of Guelph

In 1966 each of the four colleges maintained divisional libraries, with departmental libraries existing, in addition, in O.V.C. and O.A.C. With a centralized library system planned for a new library building, processing for the divisional libraries was centralized. The departmental libraries were, to a large extent, completely independent.

None of the divisional or departmental libraries at the University of Guelph had been designated depository libraries for government publications, but many had been receiving all publications from certain jurisdictions or agencies in selected fields. Hence, in addition to holdings of the official documents of Canada and Ontario, publications from most federal, provincial or state experimental farms, agricultural or fisheries research stations or veterinary centres in the world had been received on a regular basis. Publications from such United Nations agencies as the World Health Organization, Food and Agriculture Organization and

UNESCO had also been received, on a regular basis, in addition to selected material in fields other than those noted above from foreign countries.

A preliminary survey was conducted of all government publications held in the various components of the University of Guelph Library system to determine if the holdings of the four divisional libraries - Arts, Agriculture and Science, Home Economics, and Veterinary Science would be representative of the total holdings on the campus. It was discovered that the collections in the departmental libraries were small and were duplicated to a large degree in the collections of the divisional libraries. It was therefore concluded that for the purposes of this study the holdings in the main divisional libraries, considered as one collection, could be used as the basis of a sample.

## IV The Sample

In July, 1966, the government publication collection of the University of Guelph Library was organized and arranged in a variety of schemes. Monographic publications had been catalogued and classified as separates and were shelved with the regular collection either by a Dewey or Library of Congress classification number. Research reports and bulletins from experimental farms, agricultural or fishery research stations, research laboratories, etc., had been considered to be periodicals and were bound and arranged alphabetically in the periodical stacks of the Agriculture and Science Divisional Library. Current titles from these sets were being

collected in pamphlet files in the same library.

Official documents, such as the Debates, Journals or Sessional papers of Canada and Ontario, together with annual reports or other publications from government departments were housed, basically alphabetically, in a government documents room in the Agriculture and Science Divisional Library. Any set or title which was considered more appropriate to one of the other Divisional Libraries was assigned to that Library and was shelved there in a separate documents section.

In addition to government publications and research bulletins from government sponsored institutions such as state universities or government experimental or research stations, the collections in the government documents areas included technical reports from government or industrial research activities, and annual reports from banks, companies, institutions, churches, etc., that did not lend themselves to inclusion in the subject collection. Any system to be considered for organization of government publications and research bulletins had also to make provision for this latter type of material, if such provision did not detract from the prime purpose of meeting the requirements for government publications.

A problem in determining the extent of the total collection existed since no shelf list was available for the entire collection, most of which had not been catalogued. A form was therefore designed on which to record the existing titles of government publications held in the individual libraries at the University of Guelph.* A single form was used for each government serial, although individual issues or bulletins within each title were recorded on the form so that a total volume count could be

determined as well.

For the purposes of the sample needed for this study it was concluded that a title rather than a volume count was more representative of the stratification of the Guelph collection.

Chapter 2. Footnotes

1. University of Guelph, First report (1967)

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# Chapter 3. The system

## I Introduction

With the objectives and scope of the study defined, and with the sample to be used as the basis of the study selected, it was next necessary to consider a system which would meet the stated aims of the study. Before a system can be designed, however, it is necessary to identify those factors in the environment which will influence the system. "The success of the design (of a system) is measured by the degree of integration with the environment." (1)

## II Environment of the System

Hall states that the "environment of a particular system includes all factors external to the system which affect it and which are affected by it". (2) Included in the environment are the "state of technology, other systems with which the system to be designed must coordinate, economic factors and needs".(3)

### 1. State of technology

A study was made of various documentation systems, paying attention to those aspects of the systems which might be applicable to the design of a system for organization of government publications.

Examples were sought of systems which were basically simple, and which concentrated on retrieval of a document or publication through a variety of access points.

One of the simplest machine based catalogue systems is that developed by Phyllis Richmond at the University of Rochester to provide book catalogues for the Science Libraries.(4, 5, 6) The catalogues are produced using a one-line 80 column punched card input, containing an abbreviation of the author's name, short title, two digits of the date, and the Library of Congress classification number. Names of most personal authors are adequately covered by the 20 columns allowed, but corporate author names are abbreviated and not easily recognized in some instances.(7)

Example of Entry:

```
INT NICKEL CO.        NICKEL              44 TA0480.N
JACKSON, ALBERT S.    ANALOG COMPUTATION  60 QA0076.4
```

Example of Abbreviations:

| | |
|---|---|
| SYM PHYS METALL STR | Symposium on Physical metallurgy of Stress Corrosion Fracture(8) |

The machine file at Rochester, produced as described, can be manipulated so that author, title, or subject (by classification) lists can be produced. The experience at the University of Rochester Science Libraries, however, has shown that there is no need for other than the author listing.(9)

Although a modification of this simplified approach to a machine system for government publications was considered for this study, several

factors eliminated it as a possible choice:

(a) The preponderance of corporate entries in a government collection and the ensuing abbreviation problem would not provide a tool which either faculty or students could understand with a minimum of difficulty.

(b) Truncating the title would lead to confusion in many instances, since many government publication titles repeat the first phrase, and only distinguish between reports in a sub-title.

(c) The characteristics of government publications themselves reveal that data elements in addition to author, title, and date should be identified in order to provide bibliographic access through corporate bodies, series and report numbers which may be associated with a publication.

Investigations were next made of systems which used fixed fields for some data but which also used several cards for the bibliographic data, identifying different elements within the record by coding devices. Such a system can be exemplified by that in operation at the Lockheed-Georgia Company.(10)

In this system, all data identified as essential for provision of access to each item is punched into a deck of cards, with a function code identifying various parts of the needed record. From this basic set of input cards the Scientific and Technical Information Department at Lockheed-Georgia produces a shelf-list, report control number lists, personal author index, corporate author index, KWIC index for titles, in addition to internal management reports.

In each list or index only that information used as the key (e.g. author) plus additional information needed for locational purposes (e.g. report number) is displayed.

Various features of this system appeared to provide a possible solution to the government publication organizational problem, in that provision could be made for both corporate and personal author, title, date, report number, or any other element within the document record which was identified as an element which required display. Subject retrieval would be feasible through the KWIC method of title manipulation.(11)

A study of the state of technology therefore led to consideration of a punched card, fixed and variable field format. It was next necessary to determine if the data processing and computer facilities at Guelph were such that the envisioned system would be possible.

2. Other systems with which the system must coordinate

(a) Data processing and computer facilities, University of Guelph

The Library has IBM 029 Key punch machines for recording data in machine readable form. These have upper case keys only, and are lacking several library symbols, such as square brackets. In the Computer Centre the Library has access to a card to tape machine, and the computer is an IBM System 360, Model 50, which provides the capability necessary for sorting a multitude of bibliographic entries. The printer used in the Centre is a 1403 - N 1 and it also has only upper case capabilities.

Any system designed for organization of government publications using the facilities at the University of Guelph would have to be limited to upper case printing. However, the machinery available put no other limitations on the system.

(b) Although one objective of the system to be designed was a separate collection for government publications, it was important that as much compatability as possible be achieved with the organizational system for the general collection. This would include, at Guelph, the Library of Congress Classification scheme and the Library of Congress adaptation of the Anglo-American Cataloguing Rules for entry and description. If a subject approach were to be provided by assigning descriptors or subject headings, this would have to be done through the Library of Congress list of subject headings if combatability were to be achieved in this area.

3. Economic factors

Cataloguing standards accepted at the University of Guelph Library indicated that one cataloguer should complete 15 titles of original cataloguing a day. In addition, two clerical staff act as support, in terms of card production, book processing, etc, for each cataloguer. Since Guelph receives an average of 250 government publications a week, applying normal cataloguing and processing standards to these publications would indicate a staff of 3 cataloguers and 6 clerks. It was considered economically impossible to assign staff of that size to the processing of government publications. Some method which would make use of non-professional staff with a high productivity rate was therefore an environmental factor which had to be considered in the design

of the system. Mechanization appeared to provide the answer to this factor, since coding and key-punching, as single input operations, could be handled by non-professional personnel. In addition, the productivity rate, based on experience at centres such as Lockheed-Georgia, would be very high.(12) This high productivity rate is possible since no decision need be made as to which is the main entry, as opposed to any other type of entry. Each element of the publication need be entered only once, and with the codes assigned, the computer would provide the various indexes necessary for access to the collection.

4. Needs

Environmental needs can be identified as those which faculty members and other library users stated as being desirable in a separate collection of government publications:

(a) Capability of browsing;

(b) Geographical base to the physical arrangement;

(c) A single indexing scheme for the separate collection, linked to the physical arrangement on the shelves, with the capability of distribution of the indexes to several service points on the campus (i.e. department libraries);

(d) Retrieval of a publication through more than a general serial title or corporate body.

This last need led to a study of the data elements of government publications and/or technical reports.

A recent report of the American Standards Institute, Sub Committee on Machine Input Records,[13] identified data elements of all bibliographic records.

"Name (title) of the work
Name of persons associated with the work
Names of corporate bodies associated with the work
Names of places associated with the work
Names of things associated with the work
Other related works
Dates associated with the work
Numbers or codes associated with the work
Serial characteristics
Form of the work
Physical features
Bibliographic contents
Subject content
Type of work reported
Level of work
Evaluation of work
Purchasing information" (VIII-1)[14]

The authors of the report break down each of the above data elements into smaller parts. For example, the title can be identified by 17 sub-elements.[15]

The data elements required for technical reports are discussed as being distinct from monographs, and a comparison is made between elements listed by the Committee on Scientific and Technical Information (COSATI) and by the American Standards Institute:

| COSATI Element | A.S.I. Equivalent |
|---|---|
| Accession number | Call (location) number or series number |
| Corporate author | Main entry, added entry or publisher and place published |
| Title | Title statement or title added entry |
| Descriptive note | Sub-title |
| Personal author | Main entry, added entry, or author statement |
| Date | Date in the imprint statement |
| Pagination | Number of pages in the collection |
| Contract number | Note |
| Report number | Call (location) number or series number |
| Availability | Notes |
| Supplementary note | Notes |
| Security classification | Notes |

(VI-II)[16]

Since the proposed system is to include both government publications and technical reports, data elements to be displayed in the bibliographic records, either explicitly or implicitly, must make provision for identification of both the COSATI elements and those elements established by the American Standards Institute.

The following elements were therefore identified as requiring

specific description in the proposed system.

Corporate author or bodies associated with the work
Personal authors associated with a work
Title
Date
Report numbers or contract or series numbers
  related to a work
Serial characteristics
Form of work
Physical features
Type of work
Bibliographic information
Subject analysis

III Specific Objectives of the Proposed System Determined by the Environment Study

1. As much information as possible should be recorded at the source from the document in hand without dependence on other tools.

2. All data elements needed for access points should be identified, and should be explicitly defined. A distinction should be made between those needing quick access from a sorting viewpoint and those which do not require such access.

3. A notation scheme with a country base is required to arrange the publications on the shelves so that browsing is possible.

4. This notation scheme must be displayed in the indexes.

5. Printed indexes, rather than card catalogues will provide access to the collection. These indexes should include personal author, corporate author, title, serial and series title, and should be produced

in sufficient copies to allow distribution to the department libraries.

6. The indexes will be in upper case character printing only.

## IV Description of the System

### 1. Input

Each document will be entered as a separate unit into the system, using a variety of codes to identify the data elements needed to retrieve the publication. Punched cards will be used, with a first card providing the capability of quick retrieval for several different characteristics. A unique number will be assigned to each document or report and will be included on the punched card set for each publication. This number will be part of the notational scheme which arranges the material on the shelves by country. To provide easy coordination with the general collection, assignment of up to the first two characters of the Library of Congress Classifications will be made for each publication. Physical characteristics of a publication will be identified using a simple code.

### 2. Output

The output of the system will consist of an arrangement of the publications on the shelves in a country-based scheme, using a unique number assigned from a Document code specifically designed for the proposed system. Indexes will provide access to the collection through those elements of the publications previously identified. Some of the indexes

will be divided into two or more section for ease of use. Special print-outs of parts of the collection can be provided if required, based on physical characteristics of the publications, broad Library of Congress classification or type of publication.

3. Operation

The publications will be assigned various codes, and the needed data elements will be input onto coding sheets. The publication will have its document code printed on its cover, and will be sent directly to the shelves. The coding sheets will be used to provide punched-card input for conversion to magnetic tape in the Computer Centre. Using computer programs, the machine-readable data on tape will be manipulated to provide the various indexes, with the document number assigned to the publication always linked to the entry in the index.

## V Summary

The system as designed thus meets the previously stated objective, and responds to the environmental factors identified as relevant to the system. Codes, which will be essential for the computer programs needed to manipulate the data for each publication, must be developed.

Chapter 3. Footnotes

1. Arthur D. Hall, A methodology for systems engineering (New York: Van Nostrand, 1966), p. 62.

2. Ibid., p. 5.

3. Ibid.

4. Phyllis A. Richmond, "A short-title catalog made with IBM tabulating equipment," Library resources and technical services, v. 7 (Winter, 1963), pp. 81-90.

5. Phyllis A. Richmond, "Book catalogs as supplements to card catalogs," Library resources and technical services, v. 8 (Fall, 1964), pp. 359-65.

6. Phyllis A. Richmond, "Notes on updating and searching computerized catalogs," Library resources and technical services, v. 10 (Spring, 1968), pp. 155-60.

7. Richmond, "Book catalogs," p. 360.

8. Richmond, "Short-title catalog," p. 88.

9. Richmond, "Book catalogs," p. 360.

10. Charles K. Bauer, "Practical application of automation in a scientific information center--a case study," in Readings in information retrieval, ed. by Harold S. Sharp (New York: Scarecrow Press, 1964), pp. 569-611.

11. Charles P. Bourne, Methods of information handling (New York: Wiley, 1963), pp. 16-20.

12. Bauer, "Practical application of automation," pp.569-611.

13. Ann T. Curran and Henriette D. Avram, The identification of data elements in bibliographic records, Final report of the Subcommittee on Machine Input Records of the United States of America Standards Institute (May, 1967).

14. Ibid., p. VIII-1.

15. Ibid., p. I-4.

16. Ibid., p. VI-2.

# Chapter 4. Coding System

## I Document Code

The most important code which needed to be developed was the document code, a number which would be unique to each publication.

The starting point in the design of this code was provided by a code developed by Hans Peter Luhn, referred to as the Luhn code.(1) This is an eleven digit code which can be used to describe any document but which lends itself particularly to monographs with personal authors.

Example: Author: Brown, James Peter
Title: Introduction to basic mechanics
Date: 1967

Luhn code for above entry: BROWJP67IBM

Thus the code is made up of the first four characters of an author's name, his initials up to two, the last two digits of the date of publication and the initial character of the first three key words in the title.

Although there are many features about the Luhn code which are attractive, notably its simplicity and ease of application, an attempt to use it to handle a multiplicity of corporate government entries showed its weaknesses. Although 2 characters could be used to describe the countries uniquely, the remaining 2 were not sufficient to provide for all the subdivisions and distinctions which occur within a jurisdiction.

A study of the notation scheme used at Oklahoma State University Library also proved useful.

Outline of the Oklahoma notation

1. Main classes

A Colonial and revolutionary period of United States

B-F Federal United States government
- B Congress
- C Judiciary
- D President
- E Executive departments
- F Independent establishments

J Confederacy

M States, territories, etc., of U.S.

N Interstate agencies

P Foreign governments

T International agencies

2. First subdivision

One letter or two, following the main classification may be arbitrarily assigned to place an agency in the desired relative position.

3. Second subdivision

Arabic numbers are assigned to agencies which are subdivisions of the initial department of the main class.

Example: FF65Federal Farm Board
FF97Federal Loan Agency

4. Third and Fourth subdivision

These two subdivisions are used when it is necessary to represent an agency subordinate to the second subdivision. The symbol is composed of the first two letters of the filing work of the agency plus a number if necessary.

Example: EC058/CA Civil Aeronautics Administration
EC058/CB Civil Aeronautics Board

5. Book Numbers

The book number is assigned from the title of the publication. It is compsed of the first letter of the first word of the title (excepting articles) plus the appropriate number from the Cutter-Sanborn tables.

6. Dates

Dates are used to distinguish editions.

II Document Code for Proposed System

The notation scheme developed for the proposed system can be seen as a combination of features of the Luhn code and the Oklahoma code.

| 1 2 | 3 | 4 5 | 6 7 | 8 9 | 10 11 | 12 13 14 | 15 |
|---|---|---|---|---|---|---|---|
| Country | Part | State or Province | Major Organization | Sub Division | Year of Publication | Title | Extra |

1. Country code

The first two digits are the country code. (See Appendix I for complete list.)

| Example: | | |
|---|---|---|
| | Canada | CA |
| | United States | US |
| | United Kingdom | UK |
| | USSR | UD |
| | India | ID |

2. Part code

The third digit, which is numeric, is used to distinguish among the various hierarchies of government within a country, to prevent publications of a province or town for example from being arranged with no distinction between them.

| Code: | | |
|---|---|---|
| | 1 | Federal government |
| | 2 | Provincial or State |
| | 3 | Country |
| | 4 | City or town |
| | 5 | National Institutions |
| | 6 | Societies and Associations |
| | 7 | Firms or companies |

3. Province or state code

(For complete listing see Appendix I)

This code is a 2 character alpha code, which arranges the documents in order under part 2 of the country code. This, of course, keeps the publications of states or provinces together.

| Example: | | |
|---|---|---|
| | Alabama | AL |
| | Ontario | ON |

4. Major organization

This is a 2 character alphabetic assignment, very similar to the first subdivision of the Oklahoma notation, to keep agencies in a desired order.

5. Subdivision

Again, the similarity to the Oklahoma scheme can be noted, with a 2 digit arabic number assigned to subdivisions of the major subdivision.

6. Your of publication

The last two digits of the date are used, as in the Luhn code. For documents published during the nineteenth century the year of publication is represented by an alphabetic character in the first date space, and a numeral in the second.

Example: 1802 A2
1814 B4
1826 C6

See Appendix I for complete code.

7. Title

Experimentation with titles of government publications revealed that the Luhn code method of using the alphabetic representation of the first letter of the first three key words of the title would lead to conflicting document numbers. The Oklahoma scheme for titles was therefore followed, except that 2 numeric digits rather than the full three

Cutter-Sanborn degits are used. An extra digit (15) can always be used to avoid conflict in the title code assignment.

Example I

Entry: Canada. Dept. of Agriculture. Marketing Service
Economics Division
Title: Consumption of food by farm households in Nova Scotia.
Date of publication: 1953

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Document number: | C | A | 1 | | | D | A | 2 | 1 | 5 | 3 | F | 2 | 6 |

Example II

Entry: Ontario. Dept. of Agriculture and Food.
Title: Beef husbandry in Ontario.
Date of publication: 1967

C A 2 O N A F 2 1 6 7 B 2 3

The code thus described meets the requirements of the system. It is a single notation for the entire collection which places the documents on the shelves in a country arrangement, with a hierarchical structure within the country further subdivided by province, department, etc. The document code is linked to the indexes which provide access to the collection through the format of the display in the index.

In addition to meeting the design requirements, the document code also provides a simple physical retrieval device through its mnemonic features. The code also breaks logically into its various parts, so that its total length does not inhibit its ease of application or use.

## III Other Codes

In order to provide quick access to certain parts of the machine record for a documnet, or to provide information, such as source, which is not implicit in the document itself, other codes were designed to allow

these features to be associated with each title. Complete codes are shown in Appendix I.

1. Type of material code

This is a one-character code which distinguishes between monographs, serials, bulletins, annual reports, etc.

2. Location code

This is a one-character code which allows identification of location of a document if placed in department or divisional libraries. Only 26 characters are needed since Guelph now has a policy of limiting the number of department libraries.

3. Source code

Although not necessary for the organization of the collection, information about the source of a document in the library system was considered important. Special listings of material received by deposit, exchange or check-list, for example, would be useful for a variety of purposes.

4. Language code

The language of a document is usually implicit in the title, but by providing an additional code provision is made for documents in two or more languages, without the necessity of specifically indicating this information in a note.

5. Subject link code

Although the main subject access in the system is through a permuted title index, a method of linking the document system to the

classification of the main collection is provided by assigning the first one or two characters of the Library of Congress classification to each document. A quick listing by broad subject area is therefore possible.

6. Physical description code

Government publications and research reports are issued in a wide variety of formats and sizes. Rather than using space in the main recording of the bibliographic information for each title, a code was devised which would provide an adequate description of monographic items. For serial titles the same space is used for a frequency code.

7. Frequency code (Serials only)

Frequency information for serial publications was included since it was hoped that a future sophistication of the proposed system might simplify the check-in and receipt part of the government publication operation.

8. Function code

This code is a method of identifying the various parts or elements of the data contained in the bibliographic record. In a traditional catalogue card format the function of a particular part of the record can often be recognized by the positioning of the information on the card. In a machine record this is, of course, impossible.

It should also be emphasized that the identification of the function of an element of the data eliminates the concept of entry or main entry. Any part of the record which has been uniquely identified

can be used as the initial display device or access point. This can be explained using an example:

A publication entitled Glimpses of our national parks by Robert Sterling Yard will appear in the following way in three different indexes. Note that the first access point in each index is different for the same publication.

Personal author index: Yard, Robert Sterling Glimpses of our national parks US1 IN25 41G65

Corporate author index: U.S. National Park Seriice Glimpses of out national parks US1 IN25 41G65

Title index: Glimpses of our national parks US1 IN25 41G65

In order to illustrate the inclusion of the codes associated with one document, in addition to the data elements for that particular title, a deck of punched cards for a government publication is included as Appendix II.

## IV Outpput Specifications

Having formulated codes and data elements which would provide all the information either implicit or explicit in the document, it was next necessary to design the indexes which would be produced from the input data by the computer. The main consideration was that only that information which was vital to the function of a particular list would be included. In the title listing, for example, title, and document number are all that are listed. If the user can identify a needed document from the title

the document number is sufficient to locate it on the shelf where additional information can be provided by the document itself.

The Shelf list, or Document number index, is the only index with complete data (including the codes) in the collection for each publication.

The indexes developed from the sample used for this study are displayed as separate booklets in Appendix III.

Pages of the index as developed from the sample used for this study are displayed in Appendix III.

Chapter 4. Footnotes

1. Hans Peter Luhn, "Key-word in context index for technical literature (KWIC INDEX)," American Documentation, v. 11, (October, 1960), pp. 288-95.

2. Ellen P. Jackson, A notation for a public documents classification, v. 43, no. 8 (Still water, Okla.: Oklahoma Agricultural and Mechanical College Bulletin, July, 1946)

# Chapter 5: Summary and conclusions

A system for the orgainization of government publications in a separate collection within a university library has been designed. This system meets the objectives which had been defined as a unified arrangement of publications on the shelves in a geographical classification, linked to a unified organization or indexing scheme providing access through a variety of data elements of each publication - i.e. personal and corporate author title, serial and series title, etc. Browsing is provided through the country-based arrangement on the shelves.

The problem of government publications and research reports within a university library was identified after a study of treatment of such publications in other libraries. The needs of the users in relation to the collection were identified in similar fashion.

A study of the environmental factors which might have an influence on the design of a system for organizing government publications was made, and the specific objectives dependent on the environmental factors were identified. With the system plan defined, codes were developed and programs written which would make the system, which was to be a mechanized one, meet the objectives.

It was also necessary to test the assumption that a mechanized system would prove more highly productive than the manual method of cataloguing. Using one librarian to assist in problem areas such as changing names of government bodies, it was found that one clerical staff member could code and keypunch 100 government publication titles a day. The ratio of professional

to clerical staff was found to be adequate at the three to one level. Thus, a department with one librarian and three clerks could expect to process 1500 titles a week using the system described in this report.

Indexes produced by the computer for a sample collection selected from the University of Guelph Library provided the test of the system.

In addition to meeting the desired objectives, the system which has been designed provides - or can provide in the future - interesting additional features. These include:

1. Compatibility with the general library system

This has been provided through the assignment of the broad Library of Congress Classification. A user who wishes to know the extent of the library holdings in mathematics, for example, can receive a print-out of all government publications in that classification, and use this in relation to the card catalogue of the general library collection or special print-outs of the general collection if the library has that capability.

2. Compatibility with other libraries

If other libraries were to follow this, or a similar mechanized plan for organizing their government publications, it would be possible to provide consolidated listings of such publications held in a certain area. This could lead to identification of overlapping collections, with all the attending ramifications of duplication of effort. In addition, a much needed check-list for publications of certain jurisdictions which have not in the past provided indexes to their own titles could be provided by assigning responsibility for total collecting in a predetermined area to individual libraries.

3. Current awareness for research personnel

Much of the literature of research in the fields of science and technology originally appears as technical or research reports. Many of these are not indexed in standard abstracting or indexing tools. Even if they were so listed, the time lag between the first appearance of the report and its citation in an index would cause loss of value in the information contained in the report. The system for organization of government publications and technical or research reports described above provides a method which could inform interested users of the availability of publications in their specific fields of interest prior to their knowledge of the existence of such reports. Using the thesaurus which would be developed from the key-words in a Key word-out-of context (KWOC) permutation of the title index, research personnel could choose the fields of interest to them. Sophistication of the search criteria would be entirely dependent on economic factors. Each new batch of additions to the collection could be matched (by the computer) with a profile of interests established for participating users. A list of publications of interest would then be printed for individual users, on a weekly or monthly basis.

Conclusion

Although this study does not necessarily answer the question asked by Caldwell, "How should a university library organize its government publications?",(1) it does illustrate one possible alternative to the two traditional methods of organizing government publications discussed in Chapter I. The system designed as a result of this study provides for a

separate collection of government publications, with a single country-based notation scheme which makes it possible to display the publications on the shelves in a manner that is conducive to browsing. The document code number not only establishes the shelf position of each publication but links the actual publication to a unified index scheme which provides access through a variety of data elements. Thus the design objectives have been met and the hypothesis supported.

In addition, this study has shown that mechanization or automation is an important environmental factor which should be considered when studying any university library system or sub-system. Automated systems may supply the solution to many existing library problems, as well as providing the capability of service to library users hitherto considered impossible. The indexes to a collection of government publications and technical or research reports produced at the University of Guelph using mechanized methods, and the additional services which are potentials of this system, illustrate this solution.

Chapter 5: Footnotes

1. George Caldwell, "University libraries and government publications: a survey," College and research libraries, v. 22 (January, 1961), pp. 30-33.

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# CODES USED FOR THE NAMES OF COUNTRIES

| | |
|---|---|
| AF | Afghanistan |
| AB | Albania |
| AG | Algeria |
| AR | Argentina |
| AS | Australia |
| AU | Austria |
| BE | Belgium |
| BI | Bolivia |
| BJ | Brazil |
| BL | Bulgaria |
| BU | Berma |
| BC | Burundi |
| C | Cambodia |
| CA | Canada |
| CE | Ceylon |
| CN | China |
| CU | Cuba |
| CZ | Czechoslovakia |
| DK | Denmark |
| FR | France |
| GH | Ghana |
| ID | India |
| IR | Ireland |
| IS | Israel |
| IT | Italy |
| JM | Jamaica |
| UP | Japan |
| KU | Kuwait |
| MQ | Mexico |
| ND | Netherlands |
| NJ | New Zealand |
| NR | Norway |
| PA | Pakistan |
| PC | Panama |
| PE | Paraguay |
| PF | Peru |
| PH | Philippines |
| PL | Poland |
| PT | Portugal |
| RM | Rumania |
| SA | Saudi Arabia |
| SE | Senegal |
| SG | Sierra Leone |
| SI | Singapore |
| SM | Somalia |
| SO | South Africa |
| SW | Sweden |
| UB | Uganda |
| UD | U.S.S.R. |
| UG | United Arab Republic |
| UK | United Kingdom |
| UN | United Nations |
| US | United States |
| YU | Yugoslavia |
| ZZ | International Organizations |

## CODES FOR PART-DIVISION WITHIN A COUNTRY

1. Federal or Central Government
2. Province or State (Universities and colleges in Canada and the United States are listed under the province or state in which they are located. For other countries, they are in part 5.).
3. Counties
4. Towns and cities
5. National institutions and universities (except in Canada and the United States where universities are listed under the province or state in which they are located).
6. Societies and associations (in Canada and United States, local societies are listed under part 2, 3, or 4, depending on whether they belong to province, county, or city).
7. Commercial firms

## CODES USED FOR THE NAMES OF PROVINCES OF CANADA

(CANADA: CA)

| | | | | | |
|---|---|---|---|---|---|
| AL | Alberta | (Alta.) | NV | Nova Scotia | (N.S.) |
| BC | British Columbia | (B.C.) | ON | Ontario | (Ont.) |
| MA | Manitoba | (Man.) | PE | Prince Edward Island | (P.E.I.) |
| NB | New Brunswick | (N.B.) | PQ | Quebec | (Que.) |
| NF | Newfoundland | (Nfld.) | SA | Saskatchewan | (Sask.) |
| NT | North West Territories | (N.W.T.) | YU | Yukon | (Yukon) |

CODES USED FOR THE NAMES OF STATES OF THE UNITED STATES

(UNITED STATES: US)

| | | |
|---|---|---|
| AB | Alabama | (Ala.) |
| AL | Alaska | (Alaska) |
| AR | Arizona | (Ariz.) |
| AS | Arkansas | (Ark.) |
| CA | California | (Calif.) |
| CL | Colorado | (Colo.) |
| CO | Connecticut | (Conn.) |
| DA | Delaware | (Del.) |
| FL | Florida | (Fla.) |
| GE | Georgia | (Ga.) |
| HA | Hawaii | (Hawaii) |
| ID | Idaho | (Idaho) |
| IL | Illinois | (Ill.) |
| IN | Indiana | (Ind.) |
| IO | Iowa | (Iowa) |
| KA | Kansas | (Kan.) |
| KE | Kentucky | (Ky.) |
| LO | Louisiana | (La.) |
| MA | Maine | (Me.) |
| MD | Maryland | (Md.) |
| MH | Massachusetts | (Mass.) |
| MI | Mighigan | (Mich.) |
| MN | Minnesota | (Minn.) |
| MP | Mississippi | (Miss.) |
| MS | Missouri | (Mo.) |
| MT | Montana | (Mont.) |
| NA | Nebraska | (Neb.) |
| Ne | Nevada | (Nev.) |
| NH | New Hampshire | (N.H.) |
| NJ | New Jersey | (N.J.) |
| NM | New Mexico | (N.M.) |
| NN | New York | (N.Y.) |
| NO | North Carolina | (N.C.) |
| NR | North Dakota | (N.D.) |
| OH | Ohio | (Ohio) |
| OK | Oklahoma | (Okla.) |
| OR | Oregon | (Or.) |
| PA | Pennsylvania | (Pa.) |
| RI | Rhode Island | (R.I.) |
| SC | South Carolina | (S.C.) |
| SD | South Dakota | (S.D.) |
| TE | Tennessee | (Tenn.) |
| TX | Texas | (Tex.) |
| UT | Utah | (Utah) |
| VE | Vermont | (Vt.) |
| VI | Virginia | (Va.) |
| WA | Washington | (Wash.) |
| WD | Washington, D.C. | |
| WE | West Virginia | (W.Va.) |
| WI | Wisconsin | (Wis.) |
| WY | Wyoming | (Wyo.) |

## CODES USED FOR UNITED NATIONS

| | |
|---|---|
| UNO | General |
| UN1 | General Assembly |
| UN2 | Secretariat and Secretary General |
| UN3 | Councils |
| UN4 | Committees and Commissions |
| UN5 | Administrations and Boards |
| UN6 | Departments, Offices, Sections, Bureaux and Library |
| UN7 | Special Agencies |
| UN8 | Conferences, Congresses and Seminars |
| UN9 | Parallel Organizations |

## YEAR CODE PREVIOUS TO 1900

| | | |
|---|---|---|
| 1801-9 | A | (A3 means 1803) |
| 1810-19 | B | (B0 means 1810) |
| 1820-29 | C | (C8 means 1828) |
| 1830-39 | D | |
| 1840-49 | E | |
| 1850-59 | F | |
| 1860-69 | G | |
| 1870-79 | H | |
| 1880-89 | I | |
| 1890-99 | J | (J9 means 1899) |

## LOCATION WITHIN LIBRARY

Location is indicated by a single alphabetic character after the second hyphen in the document number portion of the catalogue.

| | |
|---|---|
| A | Animal Science |
| B | Botany |
| C | Crop Science |
| D | Massey Library |
| E | Agricultural Economic Library (reserved but not yet in use) |
| F | History |
| G | Geography |
| H | Physical Education |
| I | |
| J | |
| K | |
| L | Lanscape Architecture |
| M | MacDonald Institute |
| N | Agricultural Engineering |
| O | |
| P | Political Studies |
| Q | Poultry Science |
| R | Reference |
| S | Soil Science |
| T | |
| U | |
| V | OVC |
| Z | Zoology |

## Appendix I

### SOURCE CODE

| | |
|---|---|
| 1 | Daily checklist |
| 2 | Mailing list |
| 3 | Gift |
| 4 | Exchange |
| 5 | Subscription |
| 6 | Membership |
| 7 | Purchase |
| 8 | |
| 9 | |
| 0 | |

### LANGUAGE CODE

| | |
|---|---|
| 1 | English |
| 2 | French |
| 3 | English/French |
| 4 | German |
| 5 | Italian |
| 6 | Chinese-Japanese |
| 7 | Russian |
| 8 | Spanish-Portuguese |
| 9 | Other polyglot |
| 0 | Other |

## FORM OR TYPE OF MATERIAL CODE

| | |
|---|---|
| A | Analysed series bulletin and report |
| M | Monograph |
| O | Official serial report |
| S | Serial - Currently received |
| I | Inactive serial |
| R | Reference |

## SUBJECT CODE (LIBRARY OF CONGRESS)

Examples

| | |
|---|---|
| QA | Mathematics |
| QC | Physics |
| QD | Chemistry |
| GN | Anthropology |
| G | Physical Geography |

## PHYSICAL DESCRIPTION CODE

| | |
|---|---|
| BK | Book |
| BL | Booklet |
| FD | Folder |
| FO | Folio |
| FS | Folding sheet |
| LF | Leaflet |
| LL | Loose Leaf |
| MF | Microfishe |
| MM | Microfilm |
| MP | Map |
| PB | Pocket book |
| PF | Pamphlet |
| MV | Multi-volume set |

## FREQUENCY (Serials)

| | |
|---|---|
| WK | Weekly |
| MN | Monthly |
| QT | Quarterly |
| AN | Annually |
| BM | Bi-monthly |
| BN | Biennial |
| BW | Bi-weekly |
| SN | Semi-Annual |
| IR | Irregular |

## FUNCTION OR IDENTIFICATION CODE

| | |
|---|---|
| Header card (for other fixed codes) | 00 |
| Corporate author | 11 |
| Official government | 11 |
| Government agency | 12 |
| University | 13 |
| Experimental stations | 14 |
| Societies | 15 |
| Commercial firms | 16 |
| Research organizations | 17 |
| | 18 |
| International organizations | 19 |
| Title | |
| Indistinctive | 21 |
| Distinctive | 22 |
| Added | 23 |
| Notes | 25 |
| Personal author | |
| First | 31 |
| Second | 32 |
| Third | 33 |
| Holdings or report no. | 41 |
| Additional corporate authors | 51-59 |
| Series | |
| Main title | 61 |
| Added title | 62 |
| Reference | |

## Appendix I

### CODES USED FOR UNITED NATIONS

| | |
|---|---|
| UNO | General |
| UN1 | General Assembly |
| UN2 | Secretariat and Secretary General |
| UN3 | Councils |
| UN4 | Committees and Commissions |
| UN5 | Administrations and Boards |
| UN6 | Departments, Offices, Sections, Bureaux and Library |
| UN7 | Special Agencies |
| UN8 | Conferences, Congresses and Seminars |
| UN9 | Parallel Organizations |

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| | | |
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| 1810-19 | B | (BO means 1810) |
| 1820-29 | C | (C8 means 1828) |
| 1830-39 | D | |
| 1840-49 | E | |
| 1850-59 | F | |
| 1860-69 | G | |
| 1870-79 | H | |
| 1880-89 | I | |
| 1890-99 | J | (J9 means 1899) |

Appendix I

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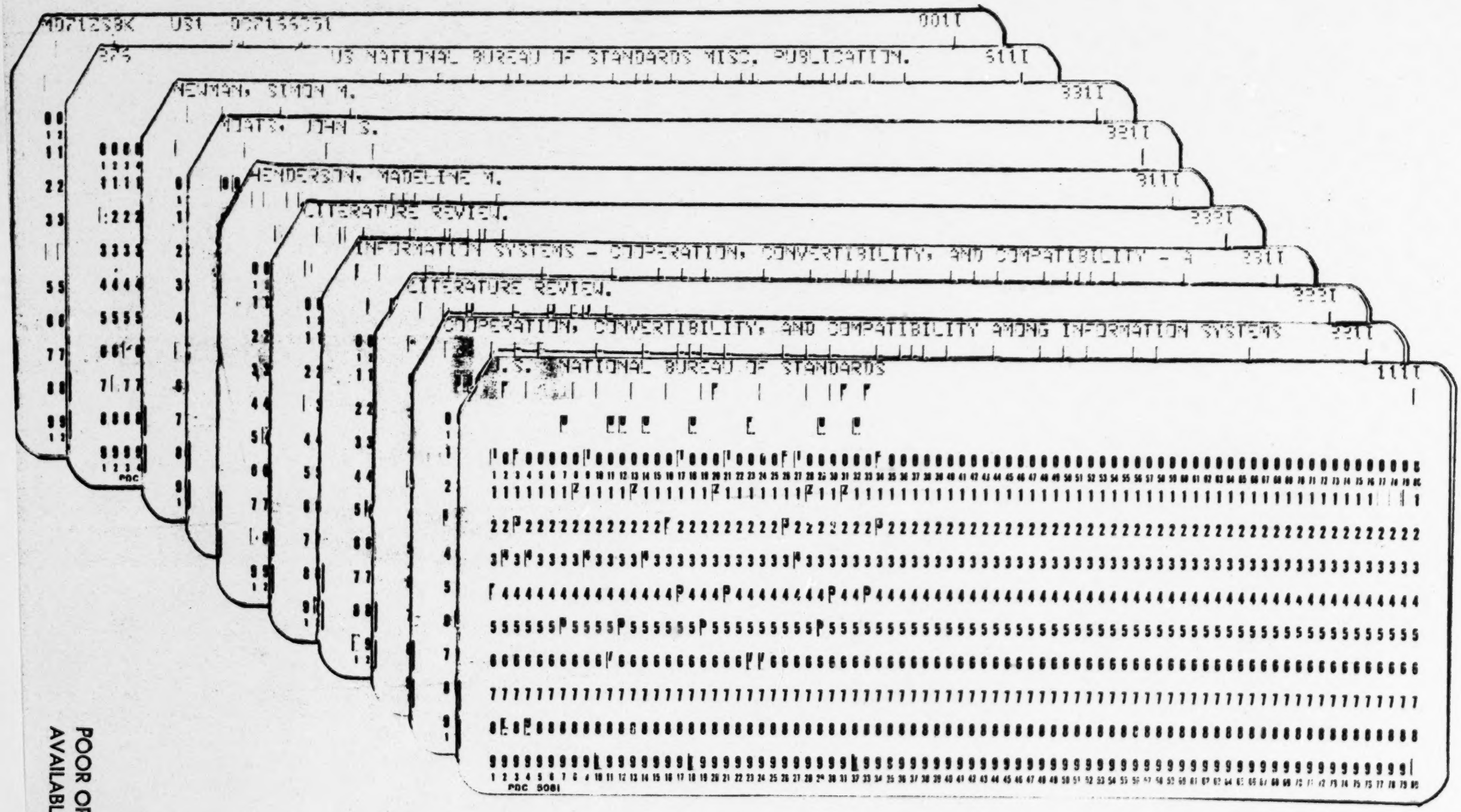
Location is indicated by a single alphabetic character after the second hyphen in the document number portion of the catalogue.

| | |
|---|---|
| A | Animal Science |
| B | Botany |
| C | Crop Science |
| D | Massey Library |
| E | Agricultural Economics Library (reserved but not yet in use) |
| F | History |
| G | Geography |
| H | Physical Education |
| I | |
| J | |
| K | |
| L | Lanscape Architecture |
| M | MacDonald Institute |
| N | Agricultural Engineering |
| O | |
| P | Political Studies |
| Q | Poultry Science |
| R | Reference |
| S | Soil Science |
| T | |
| U | |
| V | OVC |
| Z | Zoology |

## Appendix II Sample Card Set


MD7125BK US1 0527135351 0011
376 US NATIONAL BUREAU OF STANDARDS MISC. PUBLICATION. 5111
NEUMAN, SIMON M. 3311
MIATS, JOHN S. 3211
HENDERSON, MADELINE M. 3111
CITERATURE REVIEW. 3331
INFORMATION SYSTEMS - COOPERATION, CONVERTIBILITY, AND COMPATIBILITY - A 3311
CITERATURE REVIEW. 3331
COOPERATION, CONVERTIBILITY, AND COMPATIBILITY AMONG INFORMATION SYSTEMS 3211
U.S. NATIONAL BUREAU OF STANDARDS 1111
PDC
PDC 5081

POOR ORIGINAL COPY - BEST
AVAILABLE AT TIME FILME

## Appendix III

Sample index pages

US5 RC58
R26 -BK-L
NATIONAL RESEARCH COUNCIL. HIGHWAY RESEARCH BOARD
ROADSIDE DEVELOPMENT- HIGHWAY RESEARCH BOARD REPORT, 1950.

US5 RC58
R26 -BK-L
NATIONAL RESEARCH COUNCIL. HIGHWAY RESEARCH BOARD
ROADSIDE DEVELOPMENT- HIGHWAY RESEARCH BOARD REPORT, 1951.

CA2NBLC98
N13 -PF-D
NEW BRUNSWICK. LEGISLATIVE LIBRARY
NEW BRUNSWICK GOVERNMENT DOCUMENTS- A CHECKLIST OF NEW BRUNSWICK GOVERNMENT DOCUMENTS RECEIVED AT THE LEGISLATIVE LIBRARY, FREDERICTON, N.B.
*1955(NO.1)-64,1966-

US4CONH52
A55 -BL-L
NEW HAVEN, CONN. PARK COMMISSION
ANNUAL REPORT OF THE COMMISSIONERS OF PUBLIC PARKS, CITY OF NEW HAVEN, CONNECTICUT.
*1938(50TH)-42(54TH).

US2NJU 12
R21 -PF-D
NEW JERSEY AGRICULTURAL EXPERIMENT STATION
RE- SEARCH - A QUARTERLY JOURNAL PUBLISHED BY THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION.
*V.1,NO.1- WINTER 1968-

AS2NSA
F11 -BK-D
NEW SOUTH WALES. DEPT. OF AGRICULTURE
FARMERS' BULLETIN OF THE NEW SOUTH WALES DEPARTMENT OF AGRICULTURE.
*FOR LATER NUMBERS, SEE SERIES LISTING.
*NO.4(1908)-162(1928).

AS2NSA
F11 -BK-D
NEW SOUTH WALES. DEPT. OF AGRICULTURE
NEW SOUTH WALES FARMERS' BULLETIN.
*FOR LATER NUMBERS, SEE SERIES LISTING.
*NO.4(1908)-162(1928).

AS2NSA
S11 -BK-D
NEW SOUTH WALES. DEPT. OF AGRICULTURE
NEW SOUTH WALES SCIENCE BULLETINS.
*FOR LATER NUMBERS, SEE SERIES LISTING.
*NO.1(1912)-35(1930).

AS2NSA
S11 -BK-D
NEW SOUTH WALES. DEPT. OF AGRICULTURE
SCIENCE BULLETINS OF THE NEW SOUTH WALES DEPARTMENT OF AGRICULTURE.
*FOR LATER NUMBERS, SEE SERIES LISTING.
*NO.1(1912)-35(1930).

US2NNCU11
N29 -QT-D
NEW YORK STATE AGRICULTURAL EXPERIMENT STATION, GENEVA, N.Y.
NEW YORK'S FOOD AND LIFE SCIENCES.
*V.1,NO.2- APRIL-JUNE 1968-

NJ5 DI
A55 -BL-D
NEW ZEALAND DAIRY RESEARCH INSTITUTE
ANNUAL REPORT OF THE NEW ZEALAND DAIRY RESEARCH INSTITUTE.
*1966(38TH)-

NJ1 ST15
N29 -HY-D
NEW ZEALAND. DEPT. OF STATISTICS
NEW ZEALAND OFFICIAL YEARBOOK.
*1965(70TH)-

1

CLEMSON UNIVERSITY EXTENSION SERVICE HD BULLETIN.

| | | |
|---|---|---|
| 189 | HOME CANNING OF FRUITS AND VEGETABLES. | US2SCCU1666H12 -PF-D |

1

CLEMSON UNIVERSITY EXTENSION SERVICE HD CIRCULAR.

| | | |
|---|---|---|
| 230 | SCHOOL BELLS OR WEDDING BELLS. | US2SCCU1666S18 -PF-D |
| 231 | SERVE CHICKEN ANYTIME. | US2SCCU1666S11 -FS-D |

2

CLEMSON UNIVERSITY EXTENSION SERVICE INF. CARD.

| | | |
|---|---|---|
| 72(REV.66) | SUMMER SPRAY SCHEDULE FOR PEACHES. (REV.ED.) | US2SCCU1667S96 -FS-D |
| 82 | TOBACCO INSECT CONTROL RECOMMENDATIONS FOR 1967. | US2SCCU1667T63 -PF-D |
| 85(REV.67) | FOREST TREE PLANTING GUIDE, SOUTH CAROLINA. (REV.1967) | US2SCCU1667F57 -LS-D |
| 91 | 1966 FALL PLANNING GUIDE FOR SOUTH CAROLINA FIELD CROPS. | US2SCCU1666F14 -FS-D |
| 91(REV.67) | 1967 FALL PLANTING GUIDE FOR SOUTH CAROLINA FIELD CROPS. (REV.1967) | US2SCCU1667F16 -FS-D |
| 93(REV.67) | GETTING OPEN LAND READY FOR PLANTING PINES. (REV.1967) | US2SCCU1667G25 -LS-D |
| 94 | CONTROL OF HOUSEFLIES IN FARM BUILDINGS. | US2SCCU1666M57 -FS-D |
| 97(SUPPL.) | COTTON INSECT CONTROL- SOUTH CAROLINA RECOMMENDATIONS 1967. | US2SCCU1667C682-FS-D |
| 103 | INSECTICIDE USE CHART FOR MILK PRODUCERS. | US2SCCU1666I58 -FS-D |
| 103(REV.67) | INSECTICIDE USE CHART FOR MILK PRODUCERS- PREVENT INSECTICIDE RESIDUES IN YOUR MILK SUPPLY. (REV.1967) | US2SCCU1667I57 -FS-D |
| 107(REV.66) | 1967 SPRING PLANTING SCHEDULE- MAJOR SOUTH CAROLINA FIELD CROPS. (REV.1966) | US2SCCU1666S66 -FS-D |
| 108 | INSECTICIDE USE CHART FOR EGG AND POULTRY PRODUCERS. (REV.ED.) | US2SCCU1666I57 -FS-D |
| 110 | CONTROL OF APPLE INSECTS AND DISEASES - 1967. | US2SCCU1666A32 -FS-D |
| 110(SUPPLEMENT A) | SPRAY PROGRAM FOR NONBEARING APPLE TREES. | US2SCCU1666S67 -FS-D |
| 113 | PLAN TO MAKE HIGH CORN YIELDS. | US2SCCU1667P53 -FS-D |

15

CLEMSON UNIVERSITY EXTENSION SERVICE LAWNGRASS CIRCULAR SUPPLEMENT.

| | | |
|---|---|---|
| 2 | CONTROLLING TURFGRASS DISEASES. | US2SCCU1666C93 -FS-D |

1

CLEMSON UNIVERSITY EXTENSION SERVICE LIVESTOCK LFT.

| | | |
|---|---|---|
| 7(REV.67) | COSTS AND RETURNS OF GROWING HOGS IN SOUTH CAROLINA. (REV.1967) | US2SCCU1667C56 -FS-D |

1

CLEMSON UNIVERSITY EXTENSION SERVICE POULTRY LEAFLET

| | | |
|---|---|---|
| 7 | BACKYARD CAGE-LAYER SHED CAN BE A PROFITABLE FAMILY PROJECT. | US2SCCU1666B11 -FS-D |

1

CLEMSON UNIVERSITY EXTENSION SERVICE SWINE HEALTH LEAFLET.

| | | |
|---|---|---|
| 1 | SWINE BRUCELLOSIS. | US2SCCU1666S95 -LF-D |

1

CLEMSON UNIVERSITY EXTN. SERVICE VEGETABLE LEAFLET.

| | | |
|---|---|---|
| 1(REV.67) | GROWING SNAPBEANS- RECOMMENDATIONS FOR SOUTH CAROLINA. (REV.1967) | US2SCCU1667G67 -FS-D |

CA2ONER5561H58 -B -D CONSERVATION REPORT - HOLLAND VALLEY, ONTARIO, 1961 - LAND, FOREST.
CA2ONER5566H58 -BK-D CONSERVATION REPORT - HOLLAND VALLEY, ONTARIO, 1966 - WATER.
CA2ONER5648H78 -PF-D CONSERVATION REPORT - HUMBER VALLEY, ONTARIO, 1948 - RECOMMENDATIONS AND SUMMARY.
CA2ONER3859J72 -PF-D CONSERVATION REPORT - JUNCTION CREEK, ONTARIO, 1959 - LAND, FOREST.
CA2ONER3859J71 -PF-D CONSERVATION REPORT - JUNCTION CREEK, ONTARIO, 1959 - RECREATION.
CA2ONER4966K21 -BL-D CONSERVATION REPORT - KETTLE CREEK, ONTARIO, 1966 - LAND, FOREST, WILDLIFE.
CA2ONER4967K21 -BL-D CONSERVATION REPORT - KETTLE CREEK, ONTARIO, 1967 - WATER.
CA2ONER3564L16 -PF-D CONSERVATION REPORT - LAKEHEAD REGION, ONTARIO, 1964 - RECREATION.
CA2ONER3566L16 -BL-D CONSERVATION REPORT - LAKEHEAD REGION, ONTARIO, 1966 - LAND, FOREST.
CA2ONER4359L57 -BK-D CONSERVATION REPORT - LOWER SAUGEEN VALLEY CONSERVATION REPORT, 1959 - FOREST.
CA2ONER4862L57 -PF-D CONSERVATION REPORT - LOWER THAMES VALLEY, ONTARIO, 1962 - RECREATION.
CA2ONER4863L57 -BL-D CONSERVATION REPORT - LOWER THAMES VALLEY, ONTARIO, 1963 - LAND, FOREST.
CA2ONER4865L57 -BL-D CONSERVATION REPORT - LOWER THAMES VALLEY, ONTARIO, 1965 - WATER.
CA2ONER4866L57 -BL-D CONSERVATION REPORT - LOWER THAMES VALLEY, ONTARIO, 1966 - SUMMARY.
CA2ONER4465M18 -BL-D CONSERVATION REPORT - MAITLAND VALLEY, ONTARIO, 1965 - LAND, FOREST, WILDLIFE.
CA2ONER4467M18 -BL-D CONSERVATION REPORT - MAITLAND VALLEY, ONTARIO, 1967 - WATER.
CA2ONER3963M18 -PF-D CONSERVATION REPORT - MATTAGAMI VALLEY, ONTARIO, 1963 - WATER, FOREST.
CA2ONER4454M35 -BK-D CONSERVATION REPORT - MIDDLE MAITLAND, ONTARIO, 1954.
CA2ONER6550M59 -BL-D CONSERVATION REPORT - MOIRA VALLEY, ONTARIO, 195[illegible] - RECOMMENDATIONS AND SUMMARY.
CA2ONER6550M58 -BK-D CONSERVATION REPORT - MOIRA VALLEY, ONTARIO, 19[illegible].
CA2ONER6555M58 -BK-D CONSERVATION REPORT - MOIRA VALLEY, ONTARIO, 1955 - SUMMARY.
CA2ONER6867N16 -BK-D CONSERVATION REPORT - NAPANEE REGION, ONTARIO, 1967 - SALMON RIVER SECTION.
CA2ONER6857N18 -BK-D CONSERVATION REPORT - NAPANEE VALLEY, ONTARIO, 1957.
CA2ONER6858N18 -BK-D CONSERVATION REPORT - NAPANEE VALLEY, ONTARIO, 1958 - SUMMARY.
CA2ONER3557N28 -BL-D CONSERVATION REPORT - NEEBING VALLEY, ONTARIO, 1957 - FORESTRY, LAND USE
CA2ONER6064N36 -PF-D CONSERVATION REPORT - NIAGARA PENINSULA, ONTARIO, 196[illegible] - RECREATION.
CA2ONER6064N36 -BL-D CONSERVATION REPORT - NIAGARA PENINSULA, ONTARIO, 1964 - WATER.
CA2ONER5254N51 -PF-D CONSERVATION REPORT - NORTH CREEK, ONTARIO, 1954.
CA2ONER4259N53 -HV-D CONSERVATION REPORT - NORTH GREY REGION, ONTARIO, 1959.
CA2ONER4261N53 -BK-D CONSERVATION REPORT - NORTH GREY REGION, ONTARIO, 1961 - SUMMARY.
CA2ONER5464N58 -BK-D CONSERVATION REPORT - NOTTAWASAGA VALLEY, ONTARIO, 1964.
CA2ONER6361072 -BL-D CONSERVATION REPORT - OTONABEE REGION, ONTARIO, 1961 - FOREST.
CA2ONER6361071 -BL-D CONSERVATION REPORT - OTONABEE REGION, ONTARIO, 1961 - LAND.
CA2ONER6362071 -PF-D CONSERVATION REPORT - OTONABEE REGION, ONTARIO, 1962 - RECREATION.
CA2ONER6362072 -PF-D CONSERVATION REPORT - OTONABEE REGION, ONTARIO, 1962 - WILDLIFE.
CA2ONER6365071 -BK-D CONSERVATION REPORT - OTONABEE REGION, ONTARIO, 1965 - SUMMARY.
CA2ONER5162071 -BK-D CONSERVATION REPORT - OTTER CREEK, ONTARIO, 1962 - SUMMARY.
CA2ONER5157078 -HV-D CONSERVATION REPORT - OTTER VALLEY, ONTARIO, 1957.
CA2ONER6668P62 -BK-D CONSERVATION REPORT - PRINCE EDWARD REGION, ONTARIO, 1968 - LAND, FOREST, WATER, WILDLIFE.
CA2ONER5656R52 -HV-D CONSERVATION REPORT - R.D.H.P. VALLEY (ROUGE, DUFFIN, HIGHLAND, PETTICOAT), ONTARIO, 1956.
CA2ONER7166R16 -BL-D CONSERVATION REPORT - RAISIN RIVER, ONTARIO, 1966.
CA2ONER4159S18 -BL-D CONSERVATION REPORT - SAUBLE VALLEY, ONTARIO, 1959 - FOREST.
CA2ONER4160S17 -BL-D CONSERVATION REPORT - SAUBLE VALLEY, ONTARIO, 196[illegible] - LAND.
CA2ONER4162S19 -BK-D CONSERVATION REPORT - SAUBLE VALLEY, ONTARIO, 1962 - WATER, WILDLIFE.
CA2ONER4352S18 -HV-D CONSERVATION REPORT - SAUGEEN VALLEY, ONTARIO, 1952.
CA2ONER5858S35 -HV-D CONSERVATION REPORT - SIXTEEN MILE CREEK, ONTARIO, 1958.
CA2ONER7048S55 -BL-D CONSERVATION REPORT - SOUTH NATION VALLEY, ONTARIO, 1948 - RECOMMENDATIONS AND SUMMARY.
CA2ONER5960S61 -HV-D CONSERVATION REPORT - SPENCER CREEK, ONTARIO, 196[illegible].
CA2ONER5962S62 -BK-D CONSERVATION REPORT - SPENCER CREEK, ONTARIO, 1962 - HISTORY.
CA2ONER6253R25 -PF-D CONSERVATION REPORT - STREAM CONDITIONS OF BOYD CREEK, A TRIBUTARY OF THE GANARASKA RIVER, ONTARIO, 1953.
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